RESOLUTION NO. 2020-73

A RESOLUTION OF THE VILLAGE COUNCIL OF THE VILLAGE OF KEY BISCAYNE, FLORIDA, AUTHORIZING THE VILLAGE MANAGER TO ISSUE A WORK ORDER TO KCI TECHNOLOGIES, INC. FOR PROFESSIONAL SURVEYING SERVICES FOR STORMWATER UTILITY AND RIGHT OF WAY IMPROVEMENTS RELATING TO THE MASTER ISLAND SURVEY PROJECT IN AN AMOUNT NOT TO EXCEED $500,000.00; AND PROVIDING FOR AN EFFECTIVE DATE.

WHEREAS, the Village of Key Biscayne (the "Village") issued Request for Qualifications No. 2020-04 (the "RFQ") for Professional Surveying Services for Stormwater Utility and ROW Improvements (the "Services"); and

WHEREAS, pursuant to the RFQ, the Village Council adopted Resolution No. 2020-09 and selected KCI Technologies, Inc. (the "Consultant") as one of the consultants to provide the Services and authorized the Village Manager to execute an agreement with Consultant; and

WHEREAS, Consultant has provided a proposal, attached hereto as Exhibit "A," (the "Proposal") to perform surveying services for stormwater utility and right-of-way improvements as part of the Village's Master Island Survey Project (the "Project"); and

WHEREAS, the Village Council desires to authorize the Village Manager to issue a work order for the Project consistent with the Proposal attached hereto as Exhibit "A" and the agreement entered into between the Village and Consultant; and

WHEREAS, the Village Council finds that this Resolution is in the best interest and welfare of the residents of the Village.

NOW, THEREFORE, BE IT RESOLVED BY THE VILLAGE COUNCIL OF THE VILLAGE OF KEY BISCAYNE, FLORIDA, AS FOLLOWS:

Section 1. Recitals. That each of the above-stated recitals are hereby adopted, confirmed, and incorporated herein.

Section 2. **Authorization.** The Village Manager is hereby authorized to issue a work order to Consultant for the Project consistent with the Proposal attached hereto as Exhibit "A" and the agreement previously executed in an amount not to exceed $500,000.00.

Section 3. **Effective Date.** That this Resolution shall be effective immediately upon adoption.

PASSED and ADOPTED this 8th day of December, 2020.

MICHAEL W. DAVEY, MAYOR

ATTEST:

JOCELYN B. KOCH
VILLAGE CLERK

APPROVED AS TO FORM AND LEGAL SUFFICIENCY:

WEISS SEROTA HELFMAN COLE & BIERMAN, P.L.
VILLAGE ATTORNEY

TASK ORDER No. 01

Dated this 27th day of November 2020

THE VILLAGE OF KEY BISCAYNE
PUBLIC WORKS DEPARTMENT

"Master Island Survey"

PROFESSIONAL SERVICES

This Task Order between the Village of Key Biscayne, a Florida municipal corporation ("VILLAGE") and KCI Technologies, Inc. a Delaware corporation authorized to transact business in Florida, ("CONSULTANT") is pursuant to the Surveying Services Agreement dated 06/04/2020.

PROJECT BACKGROUND

The Village is located on an island approximately six (6) miles into Biscayne Bay and connected to the mainland via the Rickenbacker Causeway. Crandon Boulevard, a four-lane road with a median, bisects the Village. Shopping centers and single purpose commercial buildings line Crandon Boulevard. Towards the west lies single family homes. The east side of Crandon Boulevard contains mid to high rise multiple family buildings, one single family district, townhomes, and another single-family area that is part of a planned unit development. The incorporated Village is flanked by two large parks: Crandon Park to the north and Bill Bags Cape Florida Recreation Area to the south. The latter receives over a million visitors per year and is a major contributor to traffic congestion on the weekends and holidays. The Village is the home to approximately 13,000 residents residing on 1.1 sq. miles.

PROJECT DESCRIPTION

This project is to provide for the land surveying services for stormwater utility and right-of-way improvement, under the direction of the Public Works Department in accordance with all applicable laws, building and environmental regulations, including code requirements for the State of Florida, Miami-Dade County, and the Village of Key Biscayne, and the Scope of Services contained in this RFQ. The Village requires a topographic survey of all publicly owned right-of-way to be conducted utilizing LiDAR scanning technology to include the following:

- Centerlines, rights-of-way, survey curve data, and ownership (property) lines
- A graphical baseline
- Locate edges of pavement, sidewalks, driveway locations and material, fire hydrants, water and force main valves, water service meters, paved areas, utility castings, curb and gutters, signs, utility and light poles, walls, fences, pad mounted electrical equipment and communications pedestals, Pump Stations (full surface feature locations, rims, valves, controls, structure limits), edges of water (lakes, ocean, ICW, wetlands, retention areas, etc.), and all other significant above-ground features within the Survey limits with the exception of: Storm and sanitary sewer structures (rims and inverts, pipe size and material), and sewer lateral cleanout locations shall not be obtained as part of this survey.
- All trees with a 3-inch diameter or greater or 12 feet high or greater
- All road names, lot/block numbers, easements (utility, drainage, etc.), geographical tie-downs to centerline of at least one major road.

- All elevations will be referenced to the North American Vertical Datum of 1988 (NAVD88)
- All control points will have Northing and Easting
- Finished Floor elevation of buildings, homes, garages, etc.
- 3D data viewing platform such as SCENE 2go or equivalent (as an add alternate)

This project shall be separated into 3 phases; See Exhibit "A" for Survey Phase Limits.

Phase 1: +/- 10 miles of roadway (+/- 20 miles of right of way), bounded by Westwood Drive / N. Club Drive and the south and W Heather Drive / E Heather Drive on the north. Limits also include a portion of the K-12 School site and the lots along the east side of Harbor Drive between West Enid Street & W. McIntyre Street.

Phase 2: +/- 7 miles of roadway (+/- 14 miles of right of way), south of Westwood Drive / N Club Drive

Phase 3: +/- 7 miles of roadway (+/- 14 miles of right of way), north of W Heather Drive / E Heather Dive

All-inclusive Option: +/- 24 miles of roadway (+/- 48 miles of right of way), simultaneous survey of Phase 1,2, & 3.

GENERAL REQUIREMENTS

Survey Standards

The CONSULTANT shall be solely responsible for ensuring all the standards the work requires are met and obtain all the requisite regulatory approvals. All survey work shall be performed in accordance with the Standards of Practice as set forth by the Board of Surveyors and Mappers pursuant to Rule 5J-17 of the Florida Administrative Code, pursuant to Section 472.027 Florida Statutes.

Quality Control

The CONSULTANT is responsible for the quality control (QC) of their work and of its sub- consultants. The CONSUTLANT shall provide to the VILLAGE the list of sub-consultants which shall be used for this project. This list shall not be changed without prior approval of the VILLAGE. All sub-consultant documents and submittals shall be submitted directly to the CONSULTANT for their independent QC review. The VILLAGE shall only accept submittals for review and action from the CONSULTANT.

The CONSULTANT shall be responsible for the professional quality, technical accuracy, and coordination of all pre-design services, designs, drawings, specifications, and other services furnished by the CONSULTANT and their sub-consultant(s). It is the CONSULTANT's responsibility to independently and continually QC their plans, specifications, reports, electronic files, progress payment applications, schedules, and all project deliverables required by this Task Order. The CONSULTANT shall provide the VILLAGE with a marked-up set of plans and/or specifications showing the CONSULTANT's QC review. Such mark-ups shall accompany the CONSULTANT's scheduled deliverables. The submittal shall include the names of the CONSULTANT's staff that performed the QC review for each component (structures, roadway, drainage, etc.).

Project Schedule

The CONSULTANT shall develop a project schedule with the VILLAGE's Project Manager within five business days after receiving the official NTP from VILLAGE and prior to the CONSULTANT beginning work. The final schedule shall include design and permitting activities, review submittal timeframes, and other project activities as applicable. The final schedule shall be prepared in Microsoft Project. The CONSULTANT shall submit updated project schedules as indicated in the specific scope of services.

Permitting

The CONSULTANT shall conduct all the necessary coordination with VILLAGE and all regulatory agencies that have an interest, jurisdiction over and may require permits for the project. During the cost and schedule estimation preparation, the CONSULTANT shall provide an estimate for costs and duration needed for the CONSULTANT to obtain all approvals/permits from all VILLAGE and non- VILLAGE departments/agencies having an interest or jurisdiction over this project. Some of the permitting agencies may include, but are not limited to:

a. South Florida Water Management District
b. Miami-Dade County
c. Village of Key Biscayne Building, Zoning, and Planning Department

SPECIFIC SCOPE OF SERVICES AND DELIVERABLES

This Task Order will cover all surveying services required to perform the Master Island Survey. The CONSULTANT is responsible for all work of their subconsultants/subcontractors to meet the deliverables included on this Task Order. The scope of services to be provided by the CONSULTANT shall be as follows:

TASK 1 – Horizontal & Vertical Project Control

KCI shall establish primary and secondary horizontal control throughout the Village in all 3 phases at once. For a project this size and geometrical shape, adjusting the measurements as a complete network over the entire Village will produce a more accurate product and save the Village money by eliminating verification of previously set control before starting other phases and in mobilization fees.

Horizontal control shall be relative to the relative to the Florida State Plane Coordinate System, East Zone, Transverse Mercator Projection, North American Datum of 1983 with a 2011 adjustment (NAD 83/2011), and established by Global Positioning System (GPS) – Fast Static and Real Time Kinematic (RTK) methods. Total Stations and other traditional methods shall be used in conjunction with GPS to establish the horizontal control.

Vertical Control shall be relative to the North American Vertical Datum of 1988 (NAVD 88). Existing Benchmarks established by Miami-Dade County shall be utilized. For existing Benchmarks that are relative to the National Geodetic Vertical Datum of 1929 (NGVD 29) shall be converted to NAVD 88 using the conversion factor determined by utilizing Corpscon 6.0.1 software, a U.S. Army Corps of Engineers Engineering Research and Development Center, Topographic Engineering Center of Alexandria, Virginia, a windows-based program for converting coordinates and elevations. Level loops will be run using a digital level and all loops shall be closed.

- Primary Control: Approximately 15 points shall be established with the intent of them lasting through construction and for years to come for all future projects. These primary points shall be document in a form submitted to the Village that shall include:
    - Coordinate Value (Northing, Easting, Elevation)
    - Material
    - Stamping
    - Location sketch
    - Photographs

Task 1 Deliverables:

- CSV file of all control points with Northing, Easting, Elevation, Description
- Control Point Data sheets for Primary Control (See Exhibit "B" for sample.)
- Signed & Sealed Surveyors Report with detailed description of methods, procedures, and levels of accuracy for control points

Lump Sum Fee (Phase 1):.....$50,855.00
Lump Sum Fee (Phase 2):.....$33,900.00
Lump Sum Fee (Phase 3):.....$36,280.00
(-)$20,035.00
Lump Sum Fee (All-Inclusive):.....$101,000.00

TASK 2 - LiDAR Acquisition

KCI shall locate the topographic information with the use of Aerial and Mobile LiDAR along the 24-mile corridor with the use of our state-of-the-art RIEGL VMX-2HA mobile LiDAR 3D laser scanner. The scanner is comprised of two RIEGL VUX-1HA High Accuracy LiDAR sensors and a high-performance INS/GNSS unit. A camera system to complement LiDAR data with precisely georeferenced images employs up to nine cameras, which can be independently positioned to focus on the most important areas to capture. Additionally, a FLIR Ladybug 5+ panorama camera captures spherical photography at the same time, so that any area of the project can be viewed remotely from the office. The mission plan for the use of the mobile LiDAR has been determined to be in the optimal collection window, considering factors such as SV geometry, PDOP, and daily traffic volumes.

The benefits of mobile LiDAR are tremendous, including the following:

- Quick turnaround, capturing 10 miles or more data per day
- Improved safety by decreasing the time crews spend within the project roadway
- Decrease of our presence amongst the public.
- Comprehensive coverage nearly eliminates costly return trips
- Great archival tool for later modifications
- Accurate locational data to 1/10 of a foot or better with use of survey grade control
- Data is generated in 3-D, so there is no need for conversions from 2-D.
- Collection of data up to highway speeds
- Collects 1,000x more data in less than 10% of the time taken for traditional collection methods

- Collects both GIS & survey data
- Can be used to QC other sources (airborne Lidar, GIS, orthoimagery)
- Can be used in emergency response for both emergency and tactical planning
- Obtains data under canopies or overhead obstructions, low cloud ceiling that can interfere with aerial data capture

Capturing the LiDAR data in the field will be done for all 3 phases at once. This will benefit the Village by having a more accurate product and will eliminate costly remobilization fees.

Task 2 Deliverables:

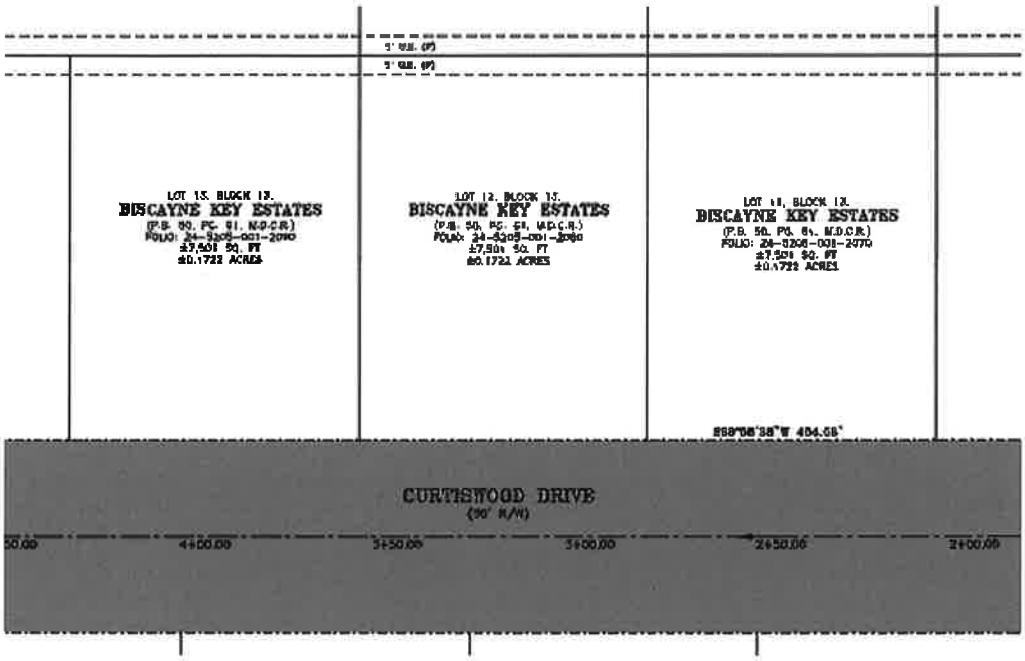
- N/A

Lump Sum Fee (Phase 1):.....$55,235.00
Lump Sum Fee (Phase 2):.....$43,090.00
Lump Sum Fee (Phase 3):.....$44,735.00
(-)$41,060.00
Lump Sum Fee (All-Inclusive):.....$102,000.00

TASK 3 – Establish Right of Way

KCI shall establish the Right of Way for all 48 miles (24 miles of roadway) throughout the Village. In addition to the establishment of the Right of Way limits, platted lots, tracts, and easements shall be plotted and provided in AutoCAD format and GIS. This will be a very accurate placement of the right of way, much more so than the typical GIS format. Once the Right of Way has been established and plotted, it will serve as the master base file for all future design throughout the Village Right of Way. Having the Right of Way established together will eliminate error that accumulates over distance that would not be found from smaller surveys pieced together.

Example of what the deliverable will be in AutoCAD format:



Task 3 Deliverables:

- AutoCAD file with:
  - Baselines
  - Right of Way lines
  - Plat lot lines and numbers
  - Platted easements

Lump Sum Fee (Phase 1):	**$25,805.00**
Lump Sum Fee (Phase 2):	**$17,390.00**
Lump Sum Fee (Phase 3):	**$18,510.00**
	(-)$10,375.00
Lump Sum Fee (All-Inclusive):	**$51,330.00**

TASK 4 – Finished Floor Elevations

KCI shall obtain the Finished Floor Elevation of all buildings and attached garages (approximately 1,600 buildings, most with attached garages) throughout the 24-mile project corridor. In addition to being used for design and evaluation of raising roadways, this data can also be used if working with the Federal Emergency Management Agency (FEMA). This information can be used by the National Flood Insurance Program (NFIP) to determine insurance rates for different areas within the Village, revision of flood maps, and included in Elevation Certificates.

Task 4 Deliverables:

- An excel file with location and elevation of Finish Floor Elevation.

Lump Sum Fee (Phase 1):.....$33,180.00
Lump Sum Fee (Phase 2):.....$22,210.00
Lump Sum Fee (Phase 3):.....$23,740.00
(-)$7,070.00
Lump Sum Fee (All-Inclusive):.....$72,060.00

TASK 5 – Tree Locations

KCI shall provide horizontal coordinates (northing & easting) along with the height of the approximately 5,000 trees within the public right of way along the 24-mile corridor with a diameter of 3 inches or more when measured at breast height (DBH). Services do not include the tree species, diameter, canopy, conditions or pictures.

Task 5 Deliverables:

- Excel file with measured information along with an associated point number of each tree that will be within the AutoCAD file of the topographic information.

Lump Sum Fee (Phase 1):.....$5,865.00
Lump Sum Fee (Phase 2):.....$3,960.00
Lump Sum Fee (Phase 3):.....$4,230.00
(-)$1,230.00
Lump Sum Fee (All-Inclusive):.....$12,825.00

TASK 6 – LiDAR Processing/Extraction & Drafting

Since the mobile LiDAR unit captures an enormous amount of data, post processing for the optimum deliverables is critical. KCI employs experienced surveyors and technicians to apply strenuous QA/QC protocol on every project. The typical post processing workflow follows:

- Process all mobile LiDAR trajectories
  - Process trajectories to CORS (if available) and local GNSS base stations for blunder detection and QA/QC
  - Final trajectories will be processed to the local GNSS base stations
  - Control trajectory to targets as laid out in the mission plan
- Complete the processing of all LiDAR and imagery data to the final trajectory solution to create 3D datasets.
- Export the LiDAR to. LAS (1.2) file format
- Export the Imagery to Web based index.

Ultimately, KCI will produce the data in the format that the Village desires. The raw data, generated point cloud, photography, and videos collected by the mobile unit are all deliverables within themselves. However, KCI will generate planimetrics, contours, CAD/BIM files, and even augmented and virtual reality views of the areas scanned.

The office will also prepare an AutoCAD Civil 3D file to be referenced to the North American Datum of 1983 with a 2011 adjustment (NAD 83/11), raw data, and ASCII files for submittal. The information collected shall also be placed in a ***Three-Dimensional (3d) Data Viewing Platform Such as Scene 2go or Equivalent.***

KCI will provide point clouds and other information in 3D data viewing platforms such as Leica JetStream and Autodesk ReCap. Both of these are viewing platforms that allow users to travel through the point cloud, view spherical photography, and take measurements. Thus, the user can virtually visit the scanned area at any time from the office. Both software platforms are free for basic use but allow users to purchase subscriptions that unlock powerful advanced features, such as importing and exporting sections of the point cloud. As these technologies advance, powerful new applications such as Cintoo allow end users to integrate 3D data, display and produce various deliverables, and collaborate in unprecedented ways. KCI can produce data that will seamlessly integrate into these platforms.

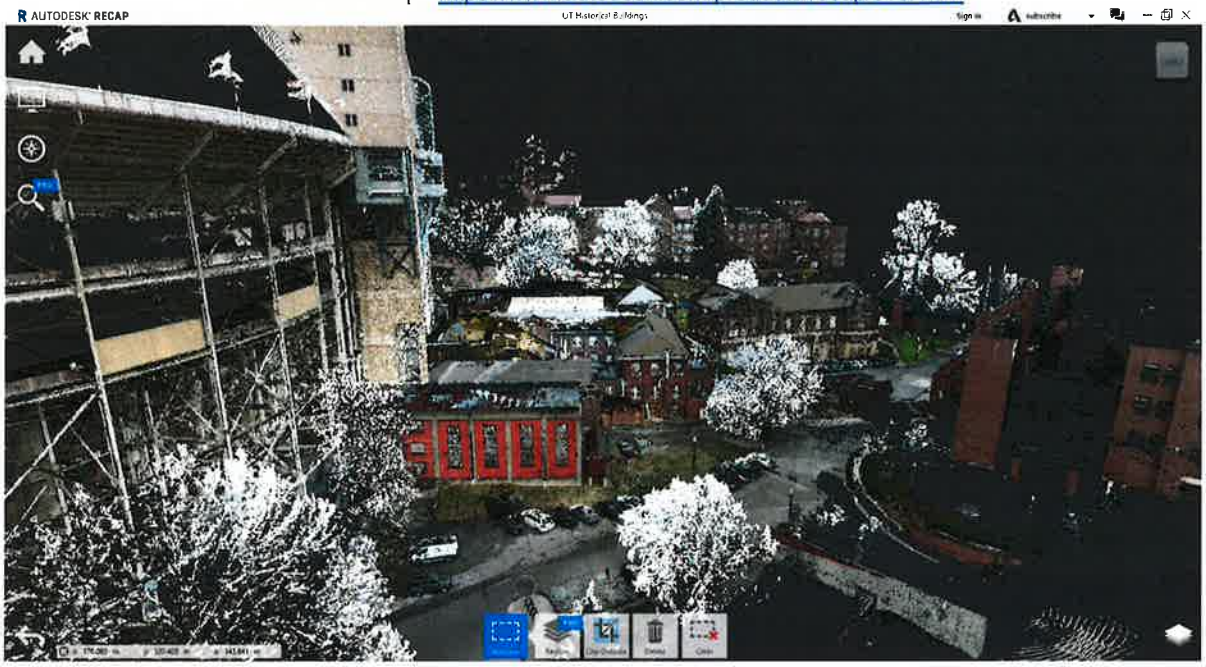
Task 6 Deliverables:

- 3d Point Cloud of all captured data
- AutoCAD file of all planimetric data
- Digital Terrane Model (DTM) in xml format depicting the ground surface as measured
- 360° photographs along the 24-mile project corridor
- Exported point cloud and photographs into the 3d viewer of the Villages choosing

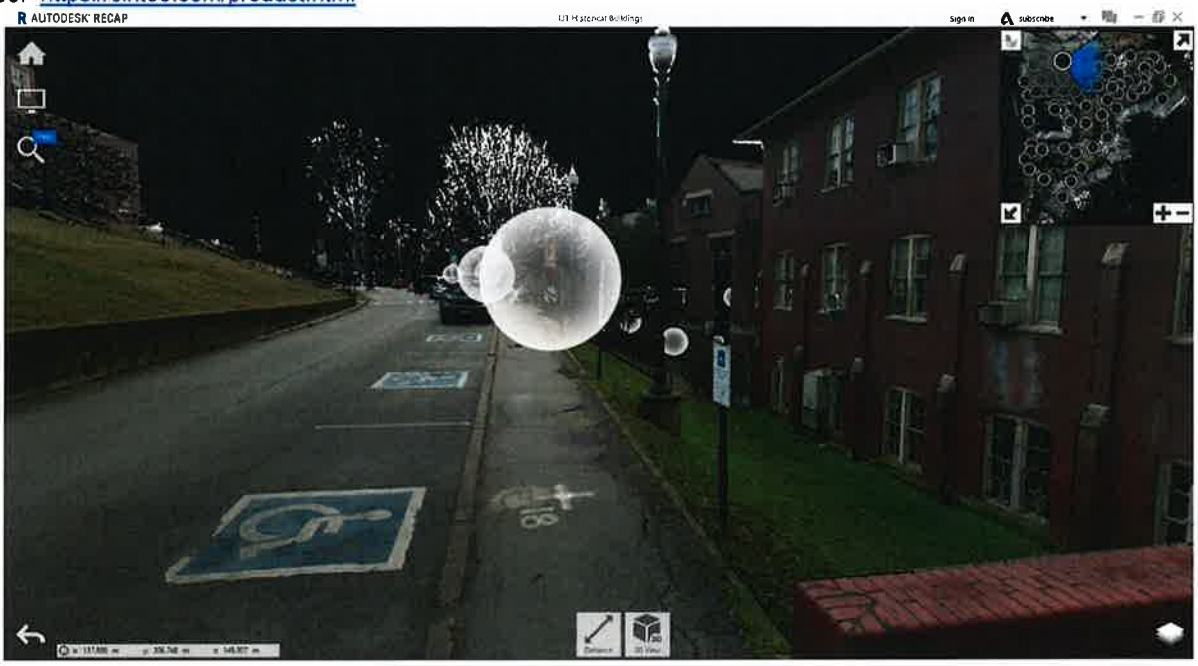
Lump Sum Fee (Phase 1):.....$74,190.00
Lump Sum Fee (Phase 2):.....$49,500.00
Lump Sum Fee (Phase 3):.....$53,055.00
(-)$16,095.00
Lump Sum Fee (All-Inclusive):.....$160,650.00

Leica JetStream: https://leica-geosystems.com/en-us/products/laser-scanners/software/leica-jetstream

Autodesk ReCap: https://www.autodesk.com/products/recap/overview



Cintoo: https://cintoo.com/product.html



OPTIONAL SERVICES

TASK 7 – Storm Sewer As-built

KCI shall provide As-builts of the entire storm drainage system structures throughout the 3 phases in the Village. There are approximately 1,180 structures made up of the following structures:

- 743 Catch Basins
- 333 Drainage Manholes
- 39 Drainage Wells
- 22 Outfalls
- 41 Pollution Control Boxes
- 2 Pump Stations

As-builts of the gravity structures shall include:

- Identification number
- Structure type
- Horizontal coordinates
- Rim elevation
- Pipe information
    - Material
    - Size
    - Direction
    - Invert elevation
- Bottom of structure elevation
- Pictures of structure and pipe conditions

A book with all structures shall be provided with a page for each structure and an overall map showing pipe and structure connectivity. Each structure page will be compiled with all information collected.

Task 7 Deliverables:

- Book with sheets for each of the 1,180 structures containing all the as-built data (See Exhibit "C" for sample.)
- Overall map showing pipe and structure connectivity and location

Lump Sum Fee (Phase 1):.....$88,545.00
Lump Sum Fee (Phase 2):.....$59,125.00
Lump Sum Fee (Phase 3):.....$63,430.00
(-)$19,300.00
Lump Sum Fee (All-Inclusive):.....$191,800.00

TASK 8 – Sanitary Sewer As-built

KCI shall provide As-builts of the entire storm drainage system structures throughout the 3 phases in the Village. There are approximately 1,426 structures made up of the following structures:

- 413 Sanitary Manholes
- 1,000 Sanitary Sewer Nodes (as identified in the Village of Key Biscayne GIS data)
- 13 Pump Stations

As-builts of the gravity structures shall include:

- Identification number
- Structure type
- Horizontal coordinates
- Rim elevation
- Pipe information
  - Material
  - Size
  - Direction
  - Invert elevation
- Bottom of structure elevation
- Pictures of structure and pipe conditions

A book with all structures shall be provided with a page for each structure and an overall map showing pipe and structure connectivity. Each structure page will be compiled with all information collected.

Task 8 Deliverables:

- Book with sheets for each of the 1,426 structures containing all the as-built data (See Exhibit "C" for sample.)
- Overall map showing pipe and structure connectivity and location

Lump Sum Fee (Phase 1):.....$43,850.00
Lump Sum Fee (Phase 2):.....$29,275.00
Lump Sum Fee (Phase 3):.....$31,500.00
(-)$9,425.00
Lump Sum Fee (All-Inclusive):.....$95,250.00

PROJECT ASSUMPTIONS

Specific assumptions for the project:

- N/A

VILLAGE'S RESPONSIBILITIES

- VILLAGE shall provide all available existing survey data, project records, drawings, reports, studies, etc.
- VILLAGE's Project Manager, or a designated representative, will coordinate the project for the VILLAGE.
- VILLAGE shall provide payment for all applicable permit fees.
- VILLAGE shall provide meeting attendance within a reasonable period upon request.
- VILLAGE shall provide timely review of submittals.

ADDITIONAL SERVICES

If authorized in writing by the VILLAGE as an amendment to this Task Order, the CONSULTANT shall furnish, or obtain from others, Additional Services of the types as listed in the Agreement. The VILLAGE will pay for these additional services as stipulated in the Agreement.

The following services are NOT included in this proposal and will be considered Additional Services, which will be addressed in a separate contractual agreement. The services include but are not limited to:

- N/A

METHOD OF COMPENSATION

The services performed will be accomplished using the Lump Sum method of compensation. Pay applications requests shall be prepared with the approved VILLAGE's pay application request format. The CONSULTANT shall submit the pay application request to the VILLAGE's Project Manager for review and approval on a monthly basis. Once the VILLAGE's Project Manager approves the CONSULTANT's pay application request, the CONSULTANT may submit it to the VILLAGE's account payable department via email (accountspayable@keybiscayne.fl.gov). Pay application requests shall be submitted monthly or as allowed by the VILLAGE's Project Manager. CONSULTANT shall submit the following back up documentation with each pay application request(s):

- A task order progress report noting work completed, pending, risks, issues or input needed form VILLAGE.

VILLAGE will only process CONSULTANT pay application requests by percentage of task order completed, accepted, and delivered as described in the task order sections.

TERMS OF COMPENSATION

Services will be provided for a Lump Sum amounts based on the negotiated rates within the master contract. See Exhibit "D" for fee and hour breakdown for each task and phase.

VILLAGE CONTACTS

Requests for payments should be directed to Village of Key Biscayne Accounts Payable via e- mail to accountspayable@keybiscayne.fl.gov. All other correspondence and submittals should be directed to the attention of

Project Manager, at the address shown below. Please be sure that all correspondence refers to the VILLAGE project number and title as stated above.

Project Manager:
Jake Ozyman, PE
Village of Key Biscayne
88 West McIntyre Street
Key Biscayne, FL 33149
(305) 365-5511
jozyman@keybiscayne.fl.gov

CONSULTANT CONTACTS

Benjamin B. Hoyle, PSM
KCI Technologies, Inc.
6500 North Andrews Avenue
Fort Lauderdale, FL 33309
954-343-6719
benjamin.hoyle@kci.com

CONSULTANT

IN WITNESS WHEREOF, the parties hereto have executed this Agreement as of the date written below their signatures.

CONSULTANT

KCI Technologies, Inc, a Delaware Corporation

By: 

Name: James Gellenthin, PLS, VP
Title: Vice President
Date Executed:

(CORPORATE SEAL)

STATE OF FLORIDA:
COUNTY OF MIAMI-DADE:

The foregoing instrument was acknowledged before me this _____ day of _____, 2020, by _____as _____ of KCI Technologies, Inc, a Delaware corporation, who is ☒ personally known to me or has produced_____ as identification.

(SEAL)

_____
Notary Public, State of Florida
(Signature of Notary taking Acknowledgement)

_____
Name of Notary Typed, Printed or Stamped

_____
My Commission Expires

_____
Commission No.

VILLAGE

IN WITNESS WHEREOF, the parties hereto have executed this Agreement as of the date written below their signatures.

VILLAGE:

VILLAGE OF KEY BISCAYNE,
a Florida Municipal Corporation

By: _____
Andrea M. Agha, Village Manager

Date Executed:

Attest:

_____
Jennifer Medina, CMC, Village Clerk

Approved as to Form and Legal Sufficiency:

_____
Village Attorney

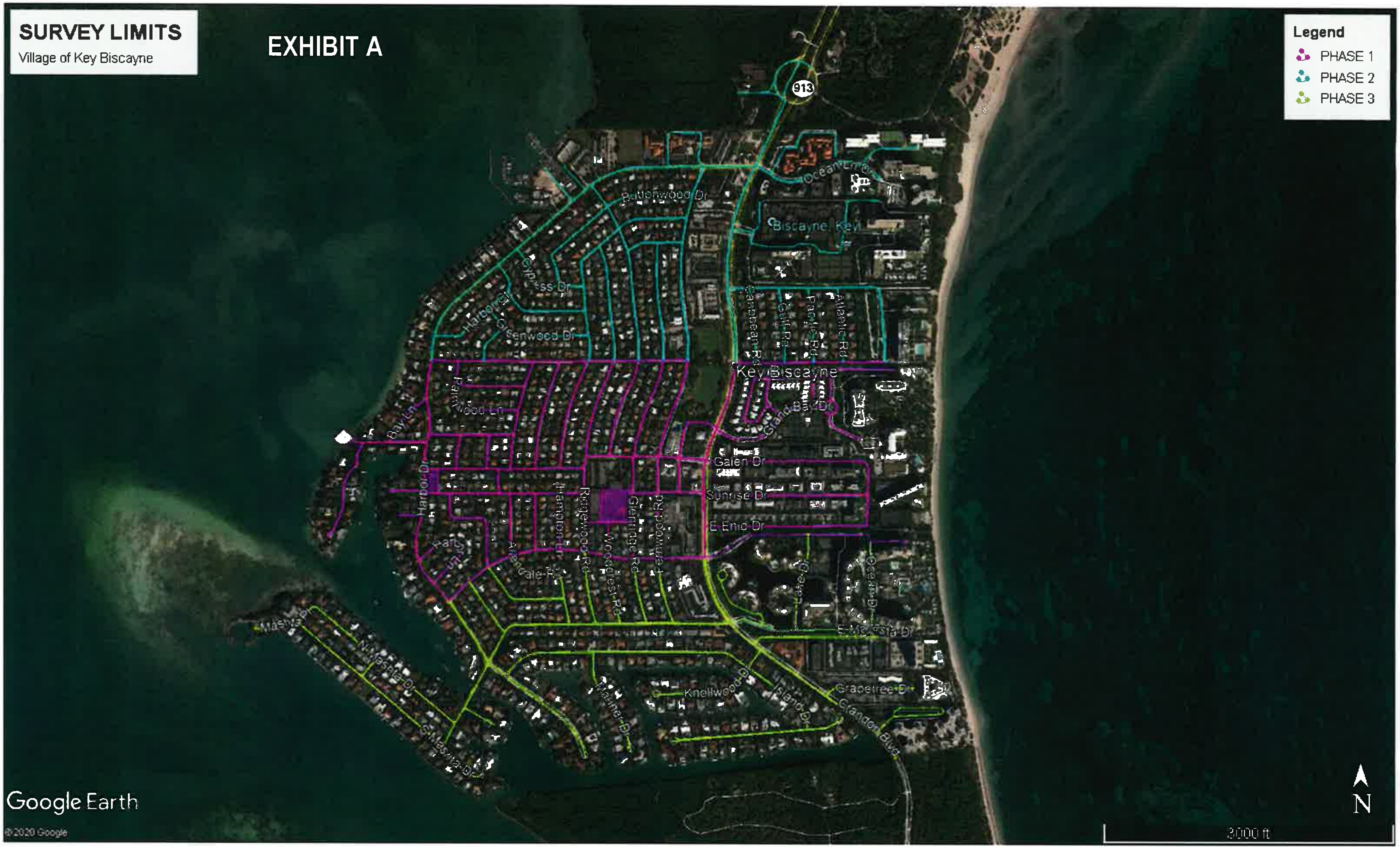

SURVEY LIMITS
Village of Key Biscayne
EXHIBIT A
Legend
PHASE 1
PHASE 2
PHASE 3
913
Ocean Ln Dr
Buttonwood Dr
Biscayne Key
Cypress Dr
Harbor Dr
Fernwood Dr
Caribbean Rd
Gulf Rd
Pacific Rd
Atlantic Rd
Key Biscayne
Fernwood Ln
Grand Bay Dr
Bay Ln
Galen Dr
Harbor Dr
Hampton Ln
Ridgewood Rd
Glenridge Rd
Sunrise Dr
E Enid Dr
Woodcrest Rd
Allendale Rd
Mashta Dr
N Mashta Dr
S Mashta Dr
E Mashta Dr
Knollwood Dr
Island Dr
Grapetree Dr
Crandon Blvd
Google Earth
© 2020 Google
N
2000 ft

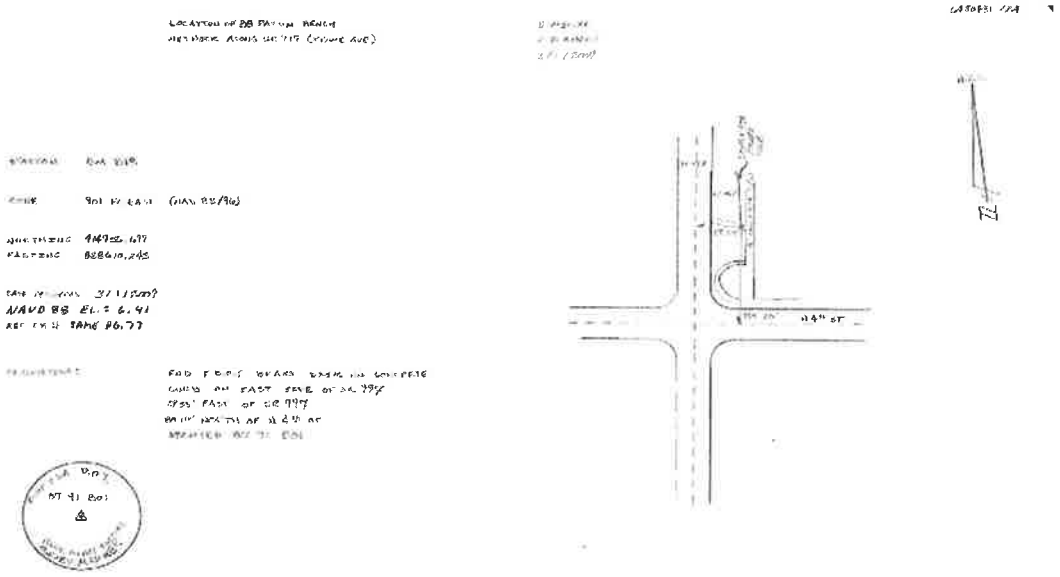
EXHIBIT B

SURVEY CONTROL DATA SHEET:

Station Name:	**DAVEY 2020**		
Coordinate System:	NAD 83(96)	Elevations (in feet)	6.41
Zone:	0901 (Florida East)	N.A.V.D. 1988:	
Northing:	414756.72156		
Easting:	828610.24241	Date Set/Recovered:	October 12, 2020
Stamping: BM 87 91 B01			
Field Book / Page:	6430431/24	Set/Recovered By:	KCI Technologies

Control Point Description:
Found 3" F.D.O.T. brass disk in curb on east side of Crandon Blvd.. 85.1' north of E Heather St., 29.55' east of centerline Crandon Blvd and 52.8' south of a concrete power pole.
3" F.D.O.T. brass disk in concrete curb stamped "87/ 91/ B01"

Copy of Field Book / Page:



BM Station: Davey 2020

Looking North

Village of Key Biscayne "Island Paradise"

EXHIBIT C

Structure Details & Photos

STRUCTURE #	C1	JOB #	E12-PWWM-01
		SEC/TWP/RGE	14-54S-39E
WEATHER: CLOUDY	TEMPERATURE: 85°	Prepared by: Firat Akcay	

NORTHING	EASTING	LATITUDE	LONGITUDE
507876.039	851816.533	25°43'46".77318	80°24'20".46423

STRUCTURE TYPE	RIM ELEV	HORIZONTAL DATUM	NAD 83/2011	NOTES
ROUND	6.76'	VERTICAL DATUM	NAVD 1988	NEED TO CLEAN DIRT FROM STRUCTURE
STRUCTURE SIZE	STRUCTURE MATERIAL	WATER ELEV	BOTTOM ELEV	
42" DIA	CONCRETE	2.7'	(-)2.6'	
TOP OF DEBRIS ELEV	DEBRIS/TYPE	GRATE/CONDITION		
(-)0.6'	DIRT	GOOD		

Pipe Material	Pipe Size	Invert	Direction	Connects to	Condition	Note:
CMP	15"	2.5'	SOUTH	M1	GOOD	
Pipe Material	Pipe Size	Invert	Direction	Connects to	Condition	Note:
CMP	15"	0.2'	EAST	C2	FAIR (UNDER WATER)	

	Note #1
	Note #2
	Note #3
	Note #4

Party Chief: William Biles
Field Book: 1483 Page: 18
Date & Time of Field Work: 5-10-16 @ 3:07 PM
Picture #

KCI TECHNOLOGIES

EXHIBIT D

Survey Manhours - Fee Estimate: Task Order 1 - Master Island Survey

Project:	Key Biscayne	Professional Surveyor	2-Man Crew	Cadd/Survey Tech	Laser Scan Crew	Scan Processor	Mobile Analyst	Aerial Lidar Obscured Areas (Lump Sum)
Estimate Date:	August 14, 2020	$150.00	$140.00	$135.00	$300.00	$135.00	$135.00	

		Professional Surveyor	2-Man Crew	Cadd/Survey Tech	Laser Scan Crew	Scan Processor	Mobile Analyst	Aerial Lidar Obscured Areas (Lump Sum)	Total Fee
1.1	Horizintal & Vertical Control - Phase 1	26	292	45					$50,855.00
1.2	Horizintal & Vertical Control - Phase 2	17	195	30					$33,900.00
1.3	Horizintal & Vertical Control - Phase 3	18	209	32					$36,280.00
1.1-1.3	Horizontal & Vertical Project Control - P1+P2+P3	61	696	107					$121,035.00
1	**Horizontal & Vertical Project Control - All-Inclusive**	**51**	**580**	**90**					**$101,000.00**
2.1	LiDAR Acquisition - Phase 1				62	141		$17,600	$55,235.00
2.2	LiDAR Acquisition - Phase 2				47	94		$16,300	$43,090.00
2.3	LiDAR Acquisition - Phase 3				49	101		$16,400	$44,735.00
2.1-2.3	LiDAR Acquisition - P1+P2+P3				158	336		$50,300	$143,060.00
2	**LiDAR Acquisition - All-Inclusive**				**94**	**280**		**$36,000.00**	**$102,000.00**
3.1	Establish Right of Way - Phase 1	28	109	47					$25,805.00
3.2	Establish Right of Way - Phase 2	19	73	32					$17,390.00
3.3	Establish Right of Way - Phase 3	20	78	34					$18,510.00
3.1-3.3	Establish Right of Way - P1+P2+P3	67	260	113					$61,705.00
3	**Establish Right of Way - All-Inclusive**	**56**	**216**	**94**					**$51,330.00**

KCI TECHNOLOGIES

EXHIBIT D

Survey Manhours - Fee Estimate: Task Order 1 - Master Island Survey

Project:	Key Biscayne	Professional Surveyor	2-Man Crew	Cadd/Survey Tech	Laser Scan Crew	Scan Processor	Mobile Analyst	Aerial Lidar Obscured Areas (Lump Sum)
Estimate Date:	August 14, 2020	$150.00	$140.00	$135.00	$300.00	$135.00	$135.00	

		Professional Surveyor	2-Man Crew	Cadd/Survey Tech	Laser Scan Crew	Scan Processor	Mobile Analyst	Aerial Lidar Obscured Areas (Lump Sum)	Total Fee
4.1	Finish Floor Elevations - Phase 1	18	129	92					$33,180.00
4.2	Finish Floor Elevations - Phase 2	12	86	62					$22,210.00
4.3	Finish Floor Elevations - Phase 3	13	92	66					$23,740.00
4.1-4.3	Finish Floor Elevations - P1+P2+P3	43	307	220					$79,130.00
4	**Finish Floor Elevations - All-Inclusive**	**40**	**279**	**200**					**$72,060.00**
5.1	Tree Location & Height - Phase 1	4		39					$5,865.00
5.2	Tree Location & Height - Phase 2	3		26					$3,960.00
5.3	Tree Location & Height - Phase 3	3		28					$4,230.00
5.1-5.3	Tree Location & Height - P1+P2+P3	10		93					$14,055.00
5	**Tree Location & Height - All-Inclusive**	**9**		**85**					**$12,825.00**
6.1	LiDAR Processing/Extraction & Drafting - Phase 1	50					494		$74,190.00
6.2	LiDAR Processing/Extraction & Drafting - Phase 2	33					330		$49,500.00
6.3	LiDAR Processing/Extraction & Drafting - Phase 3	36					353		$53,055.00
6.1-6.3	LiDAR Processing/Extraction & Drafting - P1+P2+P3	119					1177		$176,745.00
6	**LiDAR Processing/Extraction & Drafting - All-Inclusive**	**108**					**1070**		**$160,650.00**
	P1+P2+P3 Totals:	**300**	**1263**	**533**	**158**	**336**	**1177**	**$50,300**	**$595,730.00**
	All-Inclusive Totals:	**264**	**1075**	**469**	**94**	**280**	**1070**	**$36,000**	**$499,865.00**

KCI TECHNOLOGIES

EXHIBIT D

Survey Manhours - Fee Estimate: Task Order 1 - Master Island Survey

Project:	Key Biscayne	Professional Surveyor	2-Man Crew	Cadd/Survey Tech	Laser Scan Crew	Scan Processor	Mobile Analyst	Aerial Lidar Obscured Areas (Lump Sum)
Estimate Date:	August 14, 2020	$150.00	$140.00	$135.00	$300.00	$135.00	$135.00	

		Professional Surveyor	2-Man Crew	Cadd/Survey Tech	Laser Scan Crew	Scan Processor	Mobile Analyst	Aerial Lidar Obscured Areas (Lump Sum)	Total Fee
	OPTIONAL SERVICES								
7.1	Storm Sewer As-built - Phase 1	61	300	277					$88,545.00
7.2	Storm Sewer As-built - Phase 2	41	200	185					$59,125.00
7.3	Storm Sewer As- built - Phase 3	44	215	198					$63,430.00
7.1-7.3	Storm Sewer As- built - Total	146	715	660					$211,100.00
7	**Storm Sewer As- built - All-Inclusive**	**132**	**650**	**600**					**$191,800.00**
8.1	Storm Sewer As-built - Phase 1	32	142	142					$43,850.00
8.2	Storm Sewer As-built - Phase 2	21	95	95					$29,275.00
8.3	Storm Sewer As- built - Phase 3	23	102	102					$31,500.00
8.1-8.3	Storm Sewer As- built - Total	76	339	339					$104,625.00
8	**Storm Sewer As- built - All-Inclusive**	**70**	**308**	**308**					**$95,200.00**